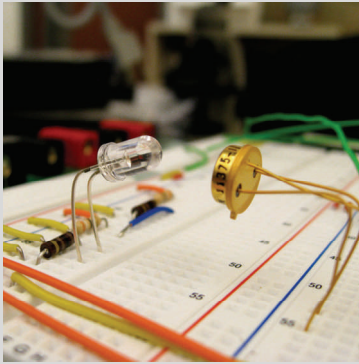
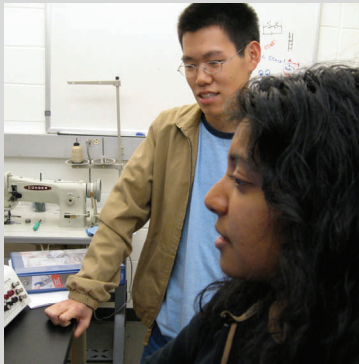


The PediO₂meter



Diagnosing Respiratory Disease

Respiratory diseases such as tuberculosis and pneumonia are the prevailing cause of neonatal and pediatric deaths world-wide. In the developing world, this problem is escalated: 22% of pediatric deaths in Africa's developing countries are attributed to acute respiratory disease. Clinicians in these countries may have limited access to technology that allows them to accurately and objectively diagnose respiratory function and determine the most urgent cases to treat. In U.S. healthcare facilities, pulse oximeters are a common tool for measuring blood oxygen concentration and heart rate, two important indicators of respiratory health. However conventional pulse oximeters fail to meet the special needs of developing countries due to their use of external power sources and non-reusable components.

A Portable, Low-Cost, Pediatric Pulse Oximeter

Allen Chen, Wafa Soofi, and Mariko Wei of **Team Three Minute Mile** (BIOE 451/452: Bioengineering Senior Design) have designed the **PediO₂meter**: a portable, self-contained, hand-crank powered pulse oximeter that fits pediatric patients in an effort to address the medical needs of the developing world. This pulse oximeter will be highly durable and of sufficiently low cost that it can be made widely available to the medical clinics of developing nations. The PediO₂meter will provide a convenient and reliable method of determining blood oxygen levels, allowing clinicians to deliver prompt medical treatment tailored to the needs of the patient. This project has been advised by Dr. Michael Tolle, Dr. Maria Oden, and Dr. Mark Pierce.

BEYOND TRADITIONAL BORDERS



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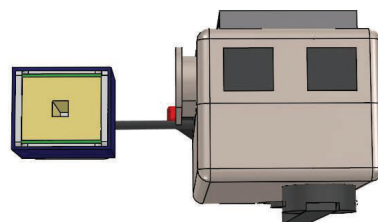
Allen Chen Wafa Soofi
Mariko Wei

HSEMB 2008
1st Place Design Award

BIPAI Baylor International
Pediatric AIDS Initiative
at Texas Children's Hospital

HHMI
HOWARD HUGHES MEDICAL INSTITUTE

This initiative is made possible by a grant to Rice University from the Howard Hughes Medical Institute through the Undergraduate Science Education Program.



PEDIO₂METER

Current Status

The PediO₂meter is currently under the final stages of development and a prototype will be complete by mid-April. The prototype of the device will be field tested in Africa during Summer 2008 through the efforts and support of Beyond Traditional Borders.

An initiative for the advancement of appropriate, high-value innovations in global health biotechnology